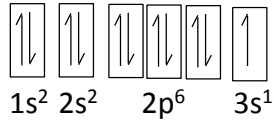
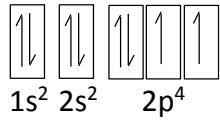
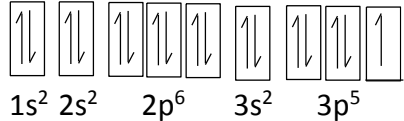
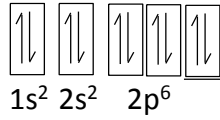



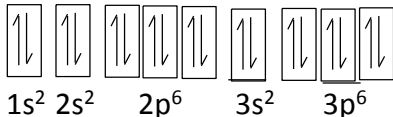
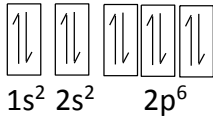
Chapter 6 (3)

Answers to Practice Problems

1)

Atom	Total no. of electrons	No. of valence electrons	Electronic configuration	Orbital diagram
A) Na	11	1	$1s^2 2s^2 2p^6 3s^1$	 $1s^2 \quad 2s^2 \quad 2p^6 \quad 3s^1$
B) O	8	6	$1s^2 2s^2 2p^4$	 $1s^2 \quad 2s^2 \quad 2p^4$
C) Cl	17	7	$1s^2 2s^2 2p^6 3s^2 3p^5$	 $1s^2 \quad 2s^2 \quad 2p^6 \quad 3s^2 \quad 3p^5$
D) Ne	10	8	$1s^2 2s^2 2p^6$	 $1s^2 \quad 2s^2 \quad 2p^6$
E) H	1	1	$1s^1$	 $1s^1$

2)

Atom	Total no. of electrons	No. of valence electrons	Electronic configuration	Orbital diagram
A) K^{+1}	18	8	$1s^2 2s^2 2p^6 3s^2 3p^6$	 $1s^2 \quad 2s^2 \quad 2p^6 \quad 3s^2 \quad 3p^6$
B) Cl^{-1}				
C) Ca^{+2}				
D) Mg^{+2}	10	8	$1s^2 2s^2 2p^6$	 $1s^2 \quad 2s^2 \quad 2p^6$
E) O^{-2}				

- **A, B and C are isoelectronic**
- **D and E are isoelectronic**

3)

Atom	Total no. of electrons	No. of valence electrons	Electronic configuration	Abbreviated electronic configuration
A) Fe	26	2 (4s)	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^6$	$[\text{Ar}] 4s^2 3d^6$
B) Cu	29	1 (4s)	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^{10}$	$[\text{Ar}] 4s^1 3d^{10}$
C) Cr	24	1 (4s)	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^1 3d^5$	$[\text{Ar}] 4s^1 3d^5$
D) Ni	28	2 (4s)	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^8$	$[\text{Ar}] 4s^2 3d^8$

Cu and Cr have exceptional configurations in 4s and 3d.